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HISPANIOLAN GIANT ANOLES (SAURIA, IGUANIDAE): NEW DATA AND A NEW SUBSPECIES

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Recent collections of Hispaniolan giant anoles (*Anolis ricordii*) by Albert Schwartz and his co-workers, and smaller numbers of specimens procured by Luc and George Whiteman for the Museum of Comparative Zoology, fill in many of the gaps in the distributional record (Williams, 1962) and permit formal description of a new race.

This study has been supported by National Science Foundation Grant GB 2444. The material of the new race has been divided at Dr. Schwartz's direction between the Museum of Comparative Zoology (MCZ), the American Museum of Natural History (AMNH), and his own collection (ASFS). A single specimen from the collection of Donald W. Buden (DWB) has been examined through the courtesy of Dr. Schwartz.

The new material confirms the taxonomic utility of the scale characters previously employed in the analysis of geographic variation (Williams, 1962). However, although Dr. Schwartz has generously made available field notes on colors in life, variation in color and pattern is such, and there is such a repertoire available to any single individual, that the hesitations and cautions expressed in the 1962 paper on this subject seem still very pertinent. The attempt has been made to use color data as fully as possible, but it will be apparent in the following pages that I have succeeded only to a limited degree. While I have described below a new subspecies primarily on color pattern, I do so with the explicit admission that only crass differences in pattern or pattern repertoire seem at all usable.

It is easiest to confront the new data in terms of the major distinguishable populations — i.e. the subspecies. I have therefore begun with the nominate race:

ANOLIS RICORDII RICORDII Duméril and Bibron

New Records: Haiti. *Departement de l'Ouest.* Lancerouelle near Mirebalais, MCZ 69404; Mirebalais, MCZ 68479; Saltrou, MCZ 69405.

Dominican Republic. *Monte Cristi Province.* Laguna de Salodillo, 7 km SE Pepillo Salcedo, ASFS V 1470; 1 km W Copey, ASFS V 1269, V 1411-12, V 1470.

The new specimens indicate that this race, in addition to occupying all of Haiti north of the Cul de Sac Plain, extends into the Dominican Republic in the Monte Cristi region. Hence the suggestion (Williams, 1962) that Ti-Guinen just west of Cape Haitien on the north coast of Haiti might be an intergrade area is in error. The extent of black on the head, nape, and shoulders of *ricordii ricordii* is apparently individually variable to a greater extent than I then realized and is perhaps less evident in the live animal than in the preserved animals. The presence of intense black patches on the anterior body and head is still a strongly marked characteristic of the males of this subspecies and is strongly correlated with the very low nape and dorsal crest scales, as well as with a high number of scales across the snout at the second canthal.

One character not previously available has been the color of the dewlap. The dewlap in the Monte Cristi specimens is described as ranging through pale peach and brown, pale peach, very pale peach speckled with brown proximally to pale yellowish gray.

Despite the new collections one embarrassment remains. No certain intergrades between the two strikingly different forms *ricordii* and *baleatus* are yet known. In view of the erratic occurrence of these giant anoles and the usual difficulty of collecting a series (see, however, below for Camp Perrin in southwest Haiti), it is not completely surprising that this should still be true. However, the area in which intergrades may occur is being narrowed: on the north coast of the Dominican Republic between Monte Cristi and Santiago and in the center of Hispaniola between Mirebalais (MCZ 68479, 69404) and Santiago. This still leaves a very wide area of ignorance.

A single specimen from Saltrou (MCZ 69405) narrows the geographic gap between *ricordii ricordii* and *r. barahonae*; however, it does nothing to narrow the character gap. This is a male extremely heavily marked with intense black not only on nape and back of head but also on the flanks — more heavily than any other specimen; in squamation also it is quite typical of *ricordii*.

Dr. Schwartz (pers. comm.) reports taking the Monte Cristi series in vines at night in a wooded area about a small cattle pond

between Copey and Pepillo Saleedo — an otherwise arid region. He states that in general *ricordii* can be captured with moderate regularity while sleeping at night in viny tangles, especially where there are dense "mats" or "curtains" of vines under a canopy. This is a usually reliable technique which, however, sometimes fails; there may be areas in which the species just does not occur.

ANOLIS RICORDII BALEATUS Cope

New records: Dominican Republic: *La Vega Province.* 4 km SW El Rio, ASFS X 8558; 0.3 mi (0.5 km) E El Rio, ASFS X 8114; 12.8 km NW Bonao, ca. 1200 feet (360 m), ASFS V 4317. *Puerto Plata Province.* 11 km SE Sosua, ASFS V 1717. *Duarte Province.* 5.6 km SW San Francisco de Macoris, DWB 271; ca. 4 km NE Ponton (Rio Cuaba), ASFS V 2987. *Samana Province.* 6 km E Sanchez, ASFS V 1904. *Peravia Province.* 1.1 mi (1.8 km) S San Jose de Ocoa, 1400 feet (425 m), ASFS V 723. *El Seibo Province.* 3.5 mi (5.8 km) S Sabana de la Mar, ASFS X 7877; 2.1 mi (3.5 km) N El Valle, ASFS V 7861-62; 3 km N El Valle, ASFS V 3157-58. *La Romana Province.* 0.7 mi (1.2 km) W Higuey, ASFS V 854-55; 1 mi (1.7 km) W Higuey, ASFS V 1038; 2.5 km NW Boca de Yuma, ASFS V 1136; 0.5 mi (0.8 km) NW Boca de Yuma, ASFS V 961-62.

The new specimens of *baleatus* add no critical localities; only the eastern Dominican Republic is represented. No qualification of the characters previously reported for this race is required; the squamation characters show a very limited variability.

Again, the colors of dewlap and chin may be added as new characters. The dewlap is described as "orange" (adult ♂), "dark orange" (adult ♂), "very bright orange" (adult ♂), "dull grayish orange" (adult ♀), "dirty orange" (adult ♀), "orange brown" (adult ♀), "pale grayish orange" (juvenile ♂), "dewlap skin charcoal, scales yellow-green" (juvenile ♀). The chin of the male from southeast of Sosua, Puerto Plata Province, with a bright orange dewlap is described as having the chin bright orange also. Other males from El Seibo Province, La Romana Province, and La Vega Province are described as having the chins some shade or other of green, varying from dark green through mottlings to yellow green. The significance of these differences is at present quite obscure; it would be particularly important to know the individual powers of color change.

ANOLIS RICORDII BARAHONAE Williams

New records: Dominican Republic. *Barahona Province.* 8 km SE Las Auyamas, 2600 feet (7880 m), ASFS X 9676. *Pedernales*

Province. 13.1 mi. (21.8 km) SW Enriquillo, ASFS V 4422.

One new specimen from 8 km SE Las Auyamas, Barahona Province, which is quite near Polo, is almost topotypic and adds no new information. As in typical specimens, the dorsum has obscure, irregular, dark blotching. The lower flanks are boldly blotched black on white. Blotching here is usual but is not usually so bold.

A second — ASFS V 4422 — from 13.1 miles (21.8 km) SW of Enriquillo, Pedernales, is typical in squamation but peculiar in having very distinct small *light* spots on the flanks. The color in life of this specimen is given by Schwartz in his field notes as: "Dorsal ground color brown to grayish, with white (faintly bluish) dark-edged ocelli. Venter white with gray mottling and stippling. Dewlap pale yellow, pink along outer edge. Head light brown. Soles of hands and feet pale yellow."

It will be recalled that it was a specimen from Enriquillo (AMNH 51241) that caused some hesitation when *barahonae* was first described. In AMNH 51241 the pattern was thought to be obscure banding; the present specimen clearly shows spots tending to be vertically aligned — a condition which is easily transformed into vertical banding. It is possible that the *ricordii* populations in the vicinity of Enriquillo consistently show a distinctive pattern though characteristically *barahonae* in squamation.

ANOLIS RICORDII LEBERI new subspecies¹

Holotype: MCZ 80935, adult male from Camp Perrin, Haiti, native-collected for Albert Schwartz, 26 July 1962.

Paratypes: MCZ 80936-42, 83982, AMNH 93713-21, ASFS X 3033-35, 3038-39, 3041-42, same data as type; MCZ 80943-53, AMNH 93722-36, ASFS X 3182, same data as type except collected 28 July 1962.

Diagnosis: A subspecies of *ricordii* resembling *barahonae* in the size of the scales of the snout (4-6 across snout between second canthals) and in the slender, tapering, but small scales of the nuchal crest, but differing from *barahonae* in the higher and larger dorsal crest scales and in the presence in adults of both sexes of a pattern of bold alternating black and light lines on nape and flanks, the black lines more or less broken into and complicated by light cross-banding. (One or two specimens have this pattern very much reduced and juveniles are irregularly spotted, without light or black lines.) Dewlap in life is a rich yellow.

¹Named for David C. Leber who has prepared accurate and beautiful water color portraits from life of this and many other West Indian anoles.

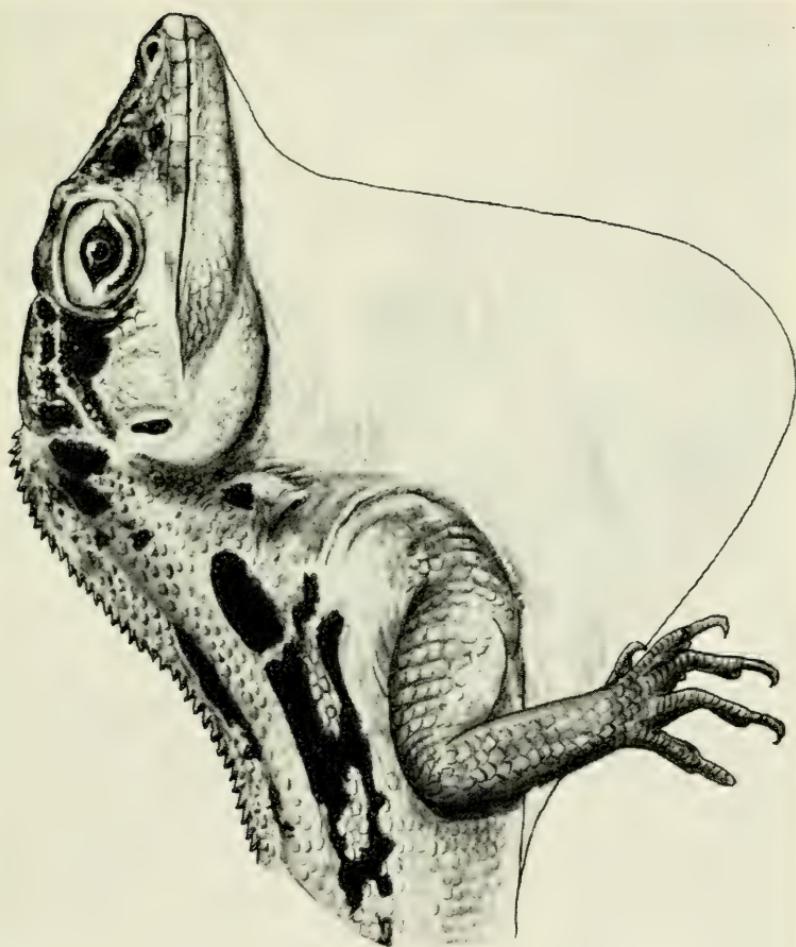


Fig. 1. *Anolis ricordii leberi*, new subspecies. Black and white from a water color by D. C. Leber.

Comments. Almost all specimens show the broken linear pattern quite clearly; probably all adults would do so in the darker phases of their pattern repertoire.

So large a series from a single locality is quite extraordinary for any of the giant anoles. Albert Schwartz (pers. comm.) confesses that *none* were seen by himself and coworkers during the period in which this splendid sample was collected by local people. A. S. Rand (*in* Williams, 1962) has commented on the shyness and difficulty of catching the single individual of this same species which he saw in 1960. Obviously only the diligence of the local Haitians has permitted this glimpse of the real numbers of these anoles which, as inhabitants of a tree crown habitat, usually elude the general herpetological collector.

From the point of view of the study of the geographic variation to which subspecific names are expected to call attention, a sample from one locality, however large, is not ideal.

The single specimen from outside the Camp Perrin region which is referred to *leberi* — MCZ 38277, collected by P. J. Darlington, Jr., discussed in Williams, 1962 — has not been made a paratype of the new taxon. It is a juvenile which in squamation completely agrees with *leberi*. However, while in its spotted, non-lineate pattern it is roughly like the single topotypic juvenile available (MCZ 83982), the pattern agreement is not striking enough and the preservation (showing an odd purplish tone not seen in any other specimen) is too different for confident assignment of the animal.

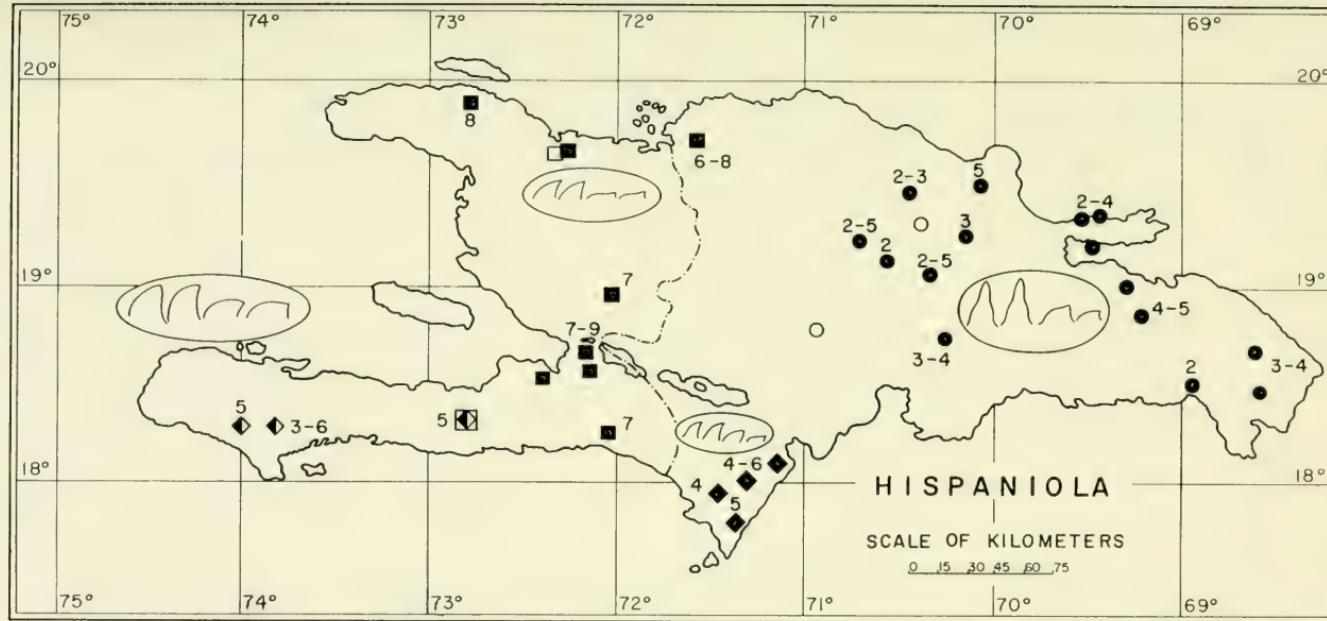
The Darlington specimen is from Tardieu in the Massif de la Hotte, not far west of Camp Perrin, but this portion of the southwest peninsula of Haiti is a region of Hispaniola in which sharp character changes occur in other anoles (e.g. *distichus*, *cybotes*) within very short distances. It is a region also which, except for the road connecting Les Cayes and Jeremie on which Camp Perrin lies, is largely herpetologically unknown. It cannot be cavalierly assumed that only one *ricordii* race will be native to this area. Perhaps no surprises await us, but in the West Indies sharp faunal changes are not unusual and casual generalizations are never safely made.

REFERENCE CITED

WILLIAMS, E.E.

1962. Notes on Hispaniolan herpetology. 6. The giant anoles. *Breviora*, Mus. Comp. Zool., No. 155: 1-15.

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- □ Ricordii - shoulder spot in ♂
- ◆ Barahonae - pattern of small blotches
- ○ Baleatus - pattern of transverse bands
- ◆ ◇ Leberi - pattern of black broken lines
- Fond des Negres population

Fig. 2. Revised distribution map of *Anolis ricordii* subspecies. Hollow symbols for *ricordii* and *baleatus* are Mertens' records. In each oval is represented, left to right, the outline of two nuchal scales and two dorsal scales. Numbers are counts of scales across snout in populations indicated by adjacent symbols.